


REMARKS

Claim 1 has been amended for clarification reasons only. The amendments to claim 1 are shown on the separate sheet entitled "Version Marked to Show Changes Made".

Respectfully submitted,

  
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Version Marked to Show Changes Made

Claim 1 has been amended as follows:

1. (Amended) A process for forming a phosphate conversion coating on a metal substrate surface, said process comprising the following operations:
  - (I) contacting the metal substrate surface with an aqueous liquid surface conditioning composition that comprises[, preferably consists essentially of, or more preferably consists of,] water and the following components:
    - (I.A) dispersed solid phosphate particles that:
      - (i) have a diameter no greater than 5  $\mu\text{m}$ ; and
      - (ii) comprise at least one substance selected from the group consisting of phosphates that contain at least one type of divalent or trivalent metal cations;
  - and
  - (I.B) as adhesion-promoting component, at least one selection from the group consisting of the following subgroups:
    - (1) monosaccharides, polysaccharides, and derivatives thereof;
    - (2) phosphorus containing solutes selected from the group consisting of orthophosphoric acid, condensed phosphoric acids, and organo-phosphonic acid compounds;
    - (3) water-soluble polymers that are homopolymers or copolymers of vinyl acetate and derivatives of these homopolymers and copolymers; and
    - (4) copolymers and polymers as afforded by the polymerization of:
      - (a) at least one selection from:
        - monomers, exclusive of vinyl acetate, that conform to general chemical formula (I):



where  $\text{R}^1 = \text{H}$  or  $\text{CH}_3$  and  $\text{R}^2 = \text{H}$ ,  $\text{C}_1$  to  $\text{C}_5$  alkyl, or  $\text{C}_1$  to  $\text{C}_5$  hydroxyalkyl; and

- other  $\alpha$ ,  $\beta$ -unsaturated carboxylic acid monomers; and,

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optionally,

- (b) not more than 50 % by weight of monomers that are not vinyl acetate and are not within the description of part (a) immediately above but are copolymerizable with said monomers that are within the description of said part (a);

and

- (II) contacting the metal substrate surface as conditioned in operation (I) as described above with a nickel-free phosphate conversion treatment bath that comprises water and the following amounts of the following components:
  - (II.A) from 0.5 to 5 g/l of zinc cations;
  - (II.B) from 5 to 30 g/l of phosphate ions; and
  - (II.C) a component of conversion accelerator.